

**WHAT IS CLAIMED IS:**

sub B2  
1. A method for reducing the number of metastases in an animal exhibiting a primary tumor comprising administering to said animal a subcytoprotective dose of a phosphorothioate or active metabolite thereof.

~~2. The method of claim 1, wherein the dose is about 10 mg/kg to about 150 mg/kg.~~

3. The method of claim 1, wherein the dose is about 10 mg/kg to about 100 mg/kg.

4. The method of claim 1, wherein the dose is about 10 mg/kg to about 50 mg/kg.

5. The method of claim 1, wherein the dose is about 10 mg/kg to about 25 mg/kg.

6. The method of claim 1, wherein said animal is a human.

7. The method of claim 1, wherein said tumor is a sarcoma or carcinoma.

sub a3  
8. The method of claim 1, wherein said compound is an aminoalkylphosphorothiate compound.

9. The method claim 8, wherein said active derivative is the thiol form.

10. The method claim 8, wherein said active derivative is the disulfide form.

11. The method of claim 1, wherein said compound is selected from the group consisting of WR-2721 (amifostine), WR-1065, WR-638, WR-77913, WR-33278, WR-3689, WR-2822, WR-2529, WR-255591, WR-2823, WR-255709, WR-151326 and WR-151327.

12. The method of claim 1, wherein said compound's route of administration is intravenous, intraperitoneal, intradermal, intramuscular, dermal, nasal, buccal, rectal, vaginal, inhalation, or topical.
- 5 13. The method of claim 1, wherein said compound is formulated into solutions, suspensions, tablets, pills, capsules, sustained release formulations, powders, creams, ointments, salves, sprays, pumps, liposomes, suppositories, inhalers, and patches.
- 10 14. The method of claim 1, further comprising administering at least one other cancer therapy.
- 15 15. The method of claim 14, wherein the other cancer therapy is chemotherapy.
- 16 16. The method of claim 15, wherein the chemotherapy comprises administering a DNA damaging agent or enzyme inhibitor to said animal.
- 17 17. The method of claim 14, wherein the other cancer therapy is radiotherapy.
- 20 18. The method of claim 17, wherein the radiotherapy comprises gamma-, x-, neutron, high LET particles or UV-irradiation.
19. The method of claim 14, wherein the other cancer therapy is gene therapy.
- 25 20. The method of claim 19, wherein the gene therapy comprises providing to a cell of said animal a tumor suppressor, an inducer of apoptosis, an antisense oncogene, angiostatin and other inhibitors of angiogenesis.
- 30 21. The method of claim 14, wherein the other cancer therapy is surgery.

22. The method of claim 21, wherein the surgery is tumor resection.

Sub C3  
5 23. The method of claim 1, further comprising monitoring the ability of the subcytoprotective dose of a phosphorothioate or active metabolite to reduce metastases in the animal.

24. The method of claim 23, wherein the monitoring comprises measuring the level of angiostatin stimulation.

10 25. The method of claim 23, wherein the monitoring comprises measuring the level of activity of a matrix metalloproteinase.

26. The method of claim 25, wherein the matrix metalloproteinase is MMP-2.

15 27. The method of claim 25, wherein the matrix metalloproteinase is MMP-9.

28. The method of claim 23, wherein the monitoring comprising measuring the stimulation of MnSOD.

20 29. The method of claim 28, wherein the measuring of MnSOD stimulation comprises measuring the stimulation of MnSOD gene expression.

Sub B4  
25 30. A method for inhibiting metastasis in an animal exhibiting a primary tumor comprising administering to said animal a subcytoprotective dose of a phosphorothioate or active metabolites thereof.

31. A method for preventing metastasis in an animal exhibiting a primary tumor comprising administering to said animal a subcytoprotective dose of a phosphorothioate or active metabolites thereof.

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add B3